



Good practice recommendations for antimicrobial use in frail elderly people

Aim:

This document aims to provide NHS boards with recommendations for rational, safe and effective use of antimicrobials in frail elderly people in both hospital and community settings.

Many of the recommendations will apply to all adults but are particularly important in the frail elderly population who are at increased risk of adverse effects of antimicrobials, healthcare associated infections and infections due to resistant organisms. Older people are also more likely to be prescribed antimicrobials than the younger population (x 2 for those >80 years and x 3 for care home residents). Antimicrobial Management Teams should ensure these recommendations are integrated within local antimicrobial policies and communicated to clinical/care teams in hospital and primary care settings. The risks and benefits of treating or not treating an infection in an older person require to be considered: not treating in terms of delirium and its consequences and reduced ability of older people to fight infection, and treating in terms of *Clostridium difficile*, resistance and altered pharmacokinetics.

Recommendations:

1. The current local empirical antimicrobial guidelines should be available in all healthcare settings e.g. wards, clinics, GP Practices, Out-of-hours services, Community Nursing bases, Community Pharmacies, hospices and Adult Care Homes.
2. Guidance to support diagnosis of infection should be available in all wards, GP Practices, Community Nursing bases and Adult Care Homes e.g. UTI decision aid, CURB/CRB-65 scores, sepsis recognition and severity assessment, management of *Clostridium difficile* infection (CDI), recommended samples for microbiology investigations. Guidance should be concise and user friendly.
3. The clinical decision to start an antimicrobial in a frail elderly person should take into account clinical benefit of treatment, both the nature and severity of the infection, co-morbidities, polypharmacy and other concomitant health issues. In older people with bacteriuria, treatment should only be started if signs of systemic infection are present. Telephone consultation and prescription of antimicrobials in primary care settings should be avoided as these issues cannot be adequately evaluated without seeing the person.
4. Prescribers, community nursing teams and care home staff should be alert to the potential for infections due to resistant organisms and confirm details of any infections during the preceding 12 weeks including antimicrobial therapy and response to treatment to inform any initiation of antimicrobial therapy.
5. When 'end of life' care has been initiated or an anticipatory/advanced care plan is in place, the relative clinical benefits and risks of antimicrobial therapy should be carefully considered, in particular,

inappropriate escalation of antimicrobial therapy. However, antimicrobial treatment of symptomatic infections may still be appropriate even in the last few days of life and prescribers should seek local palliative care advice if required.

6. When prescribing an antimicrobial the following issues should be considered:
 - Choice of antimicrobial should be guided by local policy or advice from a local infection specialist.
 - Antimicrobials with a high risk of CDI (cephalosporins, ciprofloxacin and other quinolones, co-amoxiclav, clindamycin) should be avoided if possible. Some local policies may advocate use of these agents for specific infections or in specific patient groups e.g. penicillin allergy. It should be noted that proton pump inhibitors (omeprazole, lansoprazole) are also associated with an increased risk of CDI.
 - The oral route should be used wherever possible. If the intravenous route is used due to severity of infection or inability to swallow, a switch to oral therapy should be considered as soon as possible.
 - Potential drug interactions due to polypharmacy should be checked in the current British National Formulary (BNF) Appendix 1. Examples of potentially harmful antimicrobial interactions include clarithromycin with simvastatin and warfarin.
 - The risk of adverse events caused by altered pharmacokinetic parameters of medicines is increased in older people due to low body weight, impaired absorption and reduced clearance.
 - The correct duration of antimicrobial therapy is paramount to effective treatment of an infection and minimising resistance. Duration should follow local policy or advice from a local infection specialist. Clinical/care staff and the pharmacist supplying the prescription should ensure that the antimicrobial is discontinued once the course is complete. For most infections the duration of antimicrobials should be as short as possible.
7. Prescribers should check if the person has chronic kidney disease and adjust antimicrobial dosage accordingly to avoid adverse effects - follow advice in the current BNF. Elderly people often become dehydrated, especially when unwell, and this should be considered when interpreting eGFR or serum creatinine results. Specific antimicrobial problems in renal impairment include; nitrofurantoin is contraindicated -BNF suggests avoid if eGFR < 45ml/min but the MHRA advise that a short course (3 to 7 days) may be used with caution if eGFR is 30 to 44 ml/min; gentamicin and vancomycin - weight-based initial dose calculations, dose adjustment and monitoring.
8. Clinical/care staff should monitor response to antimicrobial therapy regularly (daily in hospital settings) to assess resolution of symptoms e.g. temperature returned to normal, increased energy, alertness, mobility and appetite, and also identify any adverse effects such as nausea and vomiting, diarrhoea, skin rash. Lack of response after 48 hours of treatment and any adverse effects should be highlighted to medical staff.
9. Clinical staff should review microbiology results when available to ensure that empirical antimicrobial therapy is suitable and de-escalate broad spectrum therapy to narrow spectrum agents if appropriate.
10. In elderly females with recurrent urinary tract infection (defined as two episodes within 6 months or three episodes within 12 months) a 3-6 month trial of nightly antimicrobial prophylaxis following local antimicrobial guidelines may be considered. There is no evidence supporting longer term use of prophylactic antimicrobials so this should be avoided as it promotes emergence of resistant organisms and increases the risk of infections that may be difficult to treat.